

IN THE CLAIMS

Claim 1. (Currently Amended) A method of preconditioning data to be transferred on a switched underlay network, the method comprising the steps of:

causing data to be moved from a first storage subsystem having a first data read rate to a plurality of second storage subsystems having a collective read rate of greater magnitude than the first data read rate to precondition the data to be transferred on the switched underlay network; and

causing the data to be read out of the plurality of second storage subsystems at the collective read rate onto the switched underlay network.

Claim 2. (Original) The method of claim 1, wherein the first read data rate is lower than a data transfer rate on the switched underlay network.

Claim 3. (Original) The method of claim 1, wherein the plurality of second storage subsystems comprises the first storage subsystem and additional storage subsystems.

Claim 4. (Original) The method of claim 1, wherein the data is provided to a network element configured to multiplex the data from the plurality of second storage subsystems onto the switched underlay network.

Claim 5. (Original) The method of claim 4, wherein the second storage subsystems are geographically closer to the network element than the first storage subsystem.

Claim 6. (Original) The method of claim 4, wherein the second storage subsystems are connected to the network element over links having a higher bandwidth than the first storage subsystem.

Claim 7. (Original) The method of claim 1, wherein the step of causing the data to be moved from the first storage subsystem comprises dividing the data into sections, and moving each of the sections to at least one of the second storage subsystems.

Claim 8. (Original) The method of claim 1, wherein the collective read rate is based on individual read rates of each of the second storage subsystems.

Claim 9. (Original) The method of claim 1, further comprising the step of defining a pattern for reading of the data from the plurality of second storage subsystems, and
causing the pattern to be communicated to a target storage subsystem.

Claim 10. (Currently Amended) An apparatus for preconditioning data to be transferred on a switched underlay network, the apparatus comprising:

an interface to a storage subsystem containing a file to be transferred, the storage subsystem having a data output interface having a first data read rate;

control logic configured to generate instructions to the storage subsystem to cause the storage subsystem to precondition the data to be transferred on the switched underlay network by transferring transfer portions of the file to a plurality of second storage subsystems from which the data may be read onto the switched underlay network at a collective data read rate greater than the first data read rate.

Claim 11. (Original) The apparatus of claim 10, wherein the control logic is further configured to generate instructions to define a pattern at which the data may be read from the second storage subsystems.

Claim 12. (Original) The apparatus of claim 10, wherein the instructions generated by the control logic cause the file to be divided into sections, each section of which comprises a portion of the file.

Claim 13. (Original) The apparatus of claim 10, wherein the portions of the file are copies of the file.

Claim 14. (Original) The apparatus of claim 10, wherein the control logic is further configured to generate instructions to a network element configured to transfer the data over reserved

resources on the switched underlay network, the instructions comprising a multiplexing pattern relating to the data to be read from the second storage subsystems.

Claim 15. (Original) The apparatus of claim 14, wherein the instructions to the network element comprise buffering instructions as to how the network element should buffer the data prior to transmission on the reserved resources, and instructions as to the identity of the second storage subsystems that will provide data to be transferred on the reserved resources.

Claim 16. (New) The method of claim 1, wherein the switched underlay network is a high bandwidth wavelength-switched optical network.

Claim 17. (New) The method of claim 2, wherein the collective read rate is approximately the data transfer rate of the switched underlay network.

Claim 18. (New) The method of claim 1, wherein each of the plurality of second storage subsystems comprises at least one disk array containing a plurality of disks.

Claim 19. (New) The method of claim 18, wherein data within each of the second storage subsystems is stored in the disk array using a Redundant Array of Independent Disks (RAID) algorithm.

Claim 20. (New) The method of claim 19, wherein the step of causing data to be moved from the first storage subsystem to the plurality of second storage subsystems causes data to be allocated between the second subsystems using a RAID algorithm to implement a nested RAID storage hierarchy.